



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/775,841	02/01/2001	Ken Sakuma	0113197-002	1155

24573 7590 12/13/2002

BELL, BOYD & LLOYD, LLC
PO BOX 1135
CHICAGO, IL 60690-1135

EXAMINER

KAO, CHIH CHENG G

ART UNIT PAPER NUMBER

2882

DATE MAILED: 12/13/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/775,841

Applicant(s)

SAKUMA ET AL

Examiner

Chih-Cheng Glen Kao

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 October 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-4, and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. ("Fluorinated Polyimide Waveguides with Low Polarization-Dependent Loss and their Applications to Thermo-optic Switches") in view of Yamashita et al. (JP 59-33430) and Kenney et al. (US Patent 6311004).

Kobayashi et al. discloses an optical switch comprising: a cladding layer and polymeric core (Fig. 3, and Page 1024, col. 1, last paragraph), a width of the core enlarged at a branching to provide plural branched cores to alter a propagation path by selective heating (Fig. 9a and 9b), unitized heaters (Fig. 9a, "Heater 1" and "Heater 2") that are thin film (Page 1025, col. 2, 2nd paragraph), and a Y-shaped core having two branched cores (Fig. 9a).

However, Kobayashi et al. does not seem to specifically disclose wherein a branching section heater and branched core heaters are controlled separately as a set nor each branch heater a distance from the branched core and branching section so as not to disturb a light-branching operation.

Yamashita et al. teaches a branching section heater and branched core heaters controlled separately as a set (Fig. 1, #6, 7, and 8, and Fig. 3). Kenney et al. teaches each branch heater a

Art Unit: 2882

distance from the branched core and branching section so as not to disturb a light-branching operation (Fig. 5, #506).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the branch heaters of Yamashita et al. with the device of Kobayashi et al., since one would be motivated to attain a high extinction ratio, by providing heating electrodes independent from each other as shown by Yamashita et al. (Abstract, Purpose).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the branch heaters of Kenny et al. with the device of Kobayashi et al., since one would be motivated to use them in a small but critical region to keep the device compact as implied from Kenney et al. (col. 7, lines 20-30).

2. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. in view of Yamashita et al. as applied to claim 1 above, and further in view of Cohen et al. (US Patent 5418868). Kobayashi et al. in view of Yamashita et al. suggests a device as recited above. However, Koboyashi et al. does not seem to specifically disclose a minimum distance of 40 μm or more from a branching core heater and a center of the core adjacent.

Cohen et al. teaches a minimum distance of 40 μm or more from a branching core heater (Fig. 1, #120) and a center of the core adjacent (Fig. 1, #115) and a branching section (Fig. 1, #20).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the distance of Cohen et al. with the device of Kobayashi et al. in

Art Unit: 2882

view of Yamashita et al., since one may be motivated to affect only one part of the waveguide system when making the change as needed in Cohen et al. (col. 5, lines 60-69).

3. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. in view of Yamashita et al. (JP 59-33430) as applied to claim 1 above, and further in view of Ooba et al. ("Low crosstalk and low loss 1x8 digital optical switch using silicone resin waveguides"). Kobayashi et al. in view of Yamashita et al. suggests a device as recited above. However, Kobayashi et al. does not seem to specifically disclose combining in plural optical switches.

Ooba et al. teaches combining in plural optical switches (Fig. 1).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the plural optical switches of Ooba et al. with the device of Kobayashi et al. in view of Yamashita et al., since one may be motivated to send one signal to multiple locations as seen in Fig. 1. Secondly, the combining of plural optical switches is conventional and a plurality of combinations can be created as shown by Ooba et al. (Page 1364, top of col. 2). It would have just been a matter of engineering efficiency to combine plural switches together based on the communication system one may want to set up. This is within routine skill to one having ordinary skill in the art.

Response to Arguments

4. The objections to the drawings have been withdrawn in light of the amendment filed 10/8/02.

Art Unit: 2882

5. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

With regards to Kobayashi et al. and Yamashita et al., both references teach heating a branch to alter an optical path.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (703) 605-5298. The examiner can normally be reached on M - Th (8 am to 5 pm).

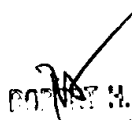
Art Unit: 2882

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



gk
December 4, 2002


ROBERT H. KIM
SUPERVISOR, PATENT EXAMINER
TELEPHONE: (703) 305-3492